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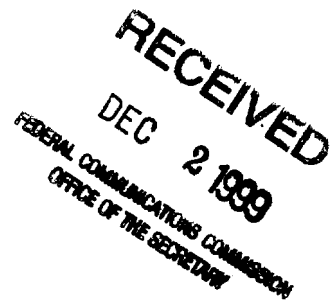

Ms. Magalie Salas
Secretary
Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

Re: Comments in CC Docket 96-45

Dear Ms. Salas:

I am submitting with this letter an original and 9 copies of Comments in Common Carrier Docket 96-45. Please accept these Comments as timely filed. On Sunday, November 28, 1999, prior to the filing deadline, I attempted to file the comments electronically, but I was unsuccessful because the FCC's server which accepts electronic filings was not in operation. On Monday morning, November 29, 1999, I attempted to file the comments electronically, but the server was still down, leaving me unable to make the filing. I contacted the electronic filing help desk, which informed me that the server was being worked, although they did not know if and when the server would be operational again. On and off during the day, I attempted to make the filing, despite being away from my office on travel. By the end of the day, I submitted the Comments to you as an attachment to an e-mail message, in the hope of preserving an opportunity to have the Comments accepted as timely filed.

Having now returned to Washington, I am now submitting the document as hardcopy with this request that the Comments be considered timely filed. Your office, and especially Mr. Caton, have been helpful in addressing the questions which have arisen as a result of the technical difficulties. I appreciate your help. Should you have any questions, please do not hesitate to contact me at (301) 951-7062. Thank you for your assistance.

Very truly yours,

Anne E. Linton, Esq.

cc. Dr. Joseph Gitlin

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ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Federal-State Joint Board on	)	
Universal Service:	)	**CC Docket No. 96-45**
Promoting Deployment and	)	
Subscribership in Unserved Areas	)	
And Underserved Areas, Including	)	
Tribal and Insular Areas	)	
	)	
	)	

To: The Commission

COMMENTS OF
Dr. Joseph Gitlin of the Johns Hopkins Medical Institutions
Dr. Ray Kilcoyne of the University of Colorado School of Medicine
Dr. Spero Manson of the University of Colorado School of Medicine

Washington Federal Strategies, on behalf of Dr. Gitlin of the Johns Hopkins Medical Institutions, and Drs. Kilcoyne and Manson of the University of Colorado School of Medicine, hereby respectfully submits these Comments in response to the *Further Notice of Proposed Rule Making ("FNPRM")*, released by the Federal Communications Commission ("FCC" or "Commission") on September 3, 1999, in CC Docket No. 96-45. These Comments generally support the FCC's proposals to extend telecommunications services to tribal lands and other underserved areas and set out some suggestions for additional methods and projects which could help accomplish the goal of extending services.

I. STATEMENT OF INTEREST

The doctors are healthcare experts who are specifically engaged in programs, including public health programs, that require high speed telecommunications links to provide high quality radiological and psychiatric services to Native American women and other underserved individuals in rural and urban areas. The filers have an interest in public health and particularly in providing health care using telemedicine applications to poor and remote areas. In the Comments below, we address some of the specific questions that the Commission raised in the *FNPRM*, but we also propose some additional incentives that the Commission could explore to help bring telecommunications services as well as telemedicine to underserved areas. The medical community has a particular interest in the extension of broadband wired, wireless, and satellite services to underserved areas because the future of high quality medical care lies in using telemedicine applications to bring doctors, patients, and medical records together. Telemedicine applications have a unique need for high bandwidth because of the urgent need to transmit data intensive medical images with 100% integrity. It is for these reasons that we are participating in this proceeding.

II. DISCUSSION

A. Current Levels of Deployment and Subscribership

Drs. Gitlin, Kilcoyne and Manson agree with the Commission that current levels of deployment and subscribership are too low especially in remote rural and tribal land areas. They applaud the Commission's efforts to provide incentives to telecommunications carriers to bring increased services to these underserved areas. The filers believe that high quality, high capacity telecommunications circuits will be the key to the success of telemedicine initiatives, in

increasing access to health care services in underserved areas. These three doctors hope to encourage the medical and public health communities to work symbiotically with the FCC to improve life on tribal lands and in other underserved and remote areas. These currently-underserved areas will become more valuable markets for telecommunications service providers, and better places to live, as a result of the service provider's investment in the infrastructure that telemedicine will - ultimately - share with other users.

Some of the medical applications envisioned will depend on mobile applications to be cost-effective. Therefore we suggest that the Commission encourage satellite services in conjunction with wireline and terrestrial wireless networks. We note that the low population densities in rural areas give most carriers little incentive to build out costly broadband networks there. If the Commission works with the medical community, the demand for high quality broadband networks will increase without carriers relying solely on low-income population as its customer base.

B. Tribal Land Development; Federal Support

The doctors encourage the Commission to help ensure that broadband access is available on tribal lands, and that it is not unreasonably restricted due to local regulations. While tribal self-determination is important, we believe that education and high-quality, low-cost health care are also very important.

We also believe that the Commission has a special obligation to provide additional federal support to bring services to tribal lands due to the unique trust relationship between the tribes and the federal government. Also, the unique status of some telemedicine initiatives makes it more likely that those initiatives will be successful with federal support, since it may be

possible to coordinate across several federal agencies to provide a variety of support mechanisms to help the projects succeed.

C. Telemedicine Applications Need Broadband Services

The medical community, which is mostly new to participation in proceedings at the FCC, does not have extensive experience in evaluating and choosing telecommunications services which would be suited for telemedicine applications. This hybrid area of telecommunications technology and medicine has been tested in many ways over the past two decades. But now, for the first time, it is possible to transmit in real time the diagnostic images and related information that make wide-spread telemedicine applications a realistic way to think of providing medical services. We in the medical community need the help of the Federal Communications Commission in encouraging the development of services that provide sufficient two-way broadband communications capacity to ensure the utility of the wireless service for telemedicine applications as well as regular phone service or even Internet access. For example, the BETRS service, which is a narrowband two-way radio service does not provide sufficient bandwidth to be particularly useful in telemedicine.

One application in which we will participate is a mobile digital mammography project. This project will take a specially equipped van to remote areas, provide digital screening and diagnostic mammograms for Native American women who otherwise do not have ready access to breast cancer screening programs. This requires that the images be transmitted *in real time* to permit prompt interpretation and to provide a report to the women while they are still in the van. With the low phone penetration rates on tribal lands it is especially important to give a report to the patients while they are in the van, so that it is possible to counsel them for any necessary

follow-up care. However, what the project requires, for real-time transmission of a 64 megabyte file containing four images, is bandwidth of two T-1s or more. Few services being developed provide two way communication that support that sort of transmission rate. Further, the existing satellite services are so expensive that the project may not be viable in the long term. We hope that the FCC can encourage providers in the Wireless Communications Services, LMDS, and other new services to consider engineering their systems to support telemedicine applications. We foresee that telemedicine applications in remote and underserved areas can help to generate the additional demand for telecommunications services in those areas that will provide the incentive to bring services more swiftly.

D. Competitive Bidding Incentives

Should the Commission choose to create incentives using its competitive bidding mechanisms to encourage the offering of new services to underserved areas, we would ask that the Commission tailor those incentives so that the services would be high-quality, high capacity services rather than low quality basic telephone services. In addition to other known applications, telemedicine has the opportunity to be the demand engine to make new services viable. But, as we stated earlier, telemedicine applications are not feasible until information transmission rates of T-1 or greater are available to transmit promptly the volume of data contained in medical images and related records.

The Commission's proposal to support only one competitive bidding winning carrier through universal service support should also consider that some carriers may not recognize that telemedicine applications are needed. We would ask that the Commission consider providing additional universal service support for public service applications, regardless of the carrier

requesting the support, as long as the program is intended to bring high-quality and broadband telemedicine applications to underserved areas. This is a more market-driven approach, and will allow the best qualified carriers to tailor their networks to the applications most advantageous to the public.

E. Underserved Areas

The Commission sought comment on underserved areas. In looking at this issue, we think it useful to note that there may be parts of urban areas which, because of the low income of the population, are also underserved. The poor urban populations do not provide a customer base which supports the provision of high-quality broadband services in those areas. Nonetheless, telemedicine applications are key to the provision of lower-cost, higher quality medical care in those areas as well. Telemedicine applications such as mobile mammography programs can bring radiologists and patients together, with the patients and their healthcare providers receiving reports promptly, regardless of whether the patient has a telephone. Also, the emergence of the Regional Medical Archive, which can store a patient's complete electronic medical record, can make it possible for a physician to review the patient's history without having to wait weeks to access records from diverse hospitals and clinics. However, to get complete electronic patient records - including the medical images - will require broadband applications that allow the transmission of those records through the telecommunications network. Because some of the broadband applications may not be accessible in low-income neighborhoods, we encourage the Commission to consider providing funding support for telemedicine applications of broadband technologies even in urban areas, when those areas are underserved.

F. Support for Telemedicine

The Commission, in its earlier Orders concerning universal service support have limited the support to transmission at T-1 rates or below. We believe it is vital for the future of telemedicine applications that the transmission rate not be capped. A cap on the transmission rate supported through universal service funding leads to the undesirable result of limiting the innovative applications that the Commission should most want to support. As more medical care is available to be provided to a wider population, the cost-effectiveness of the medical services will depend on using high-quality broadband networks to move medical images and related data. One complete mammogram contains 64 megabytes of data, for example. In remote areas, it is not efficient to bring the radiologist to each patient, nor is it efficient to bring each patient to the radiologist. But, to move the mammographic images at a rate that takes hours to get them to a qualified radiologist and get a report back to the patient does not solve the problem. High-speed transmission is the key to the future of telemedicine. Artificial caps on the transmission rates work to preclude the improvements in quality and cost efficiencies that telemedicine may be able to bring to health care. There are several pilot projects that these doctors are involved with, some of which will be more thoroughly developed by the time of the Reply Comment filing deadline. These projects could be ideal test cases for the Commission to provide universal service support for higher speed transmissions. Without support, the demonstration projects may not have a chance of success.

G. Additional Examples of Telemedicine Applications

We have suggested that the mobile digital mammography project is an ideal candidate to create incentives to bring broadband services to underserved areas and especially to tribal lands, specifically because the pilot study for this project is scheduled to be conducted with the

Mohawk tribe in New York and then undertake a full-scale field trial with the Navajo Nation and Cherokees in Arizona, Colorado, Oklahoma and New Mexico. If the project is successful at the conclusion of the pilot study, the Indian Health Service in conjunction with the University of Colorado and Johns Hopkins will expand the program to additional tribes and tribal lands. Thus, there will be many more such mobile units in remote areas, each of which can allow the use of its telecommunications facilities to local residents for many other purposes when the system is not being used to transmit medical images. To make the project even more appealing, this telemedicine project, and many others, use transmission facilities at high data rates in bursts. If all four images that make up a screening mammogram can be transmitted in less than two minutes, the bandwidth can be used for other purposes for much of the day. The report from a remote radiologist does not require the re-transmission of the medical image.

In the future, we expect that medicine will rely upon not only the electronic patient record, but also the regional medical record archive. This will permit an authorized physician to access a patient's complete medical record promptly to provide better care. Patients do not always see the same physician, and they do not always receive care at the same facility. The potential cost savings in health care related to avoiding unnecessary medical tests by being able to refer to tests already performed are very large. Further, the quality of care a physician can provide increases dramatically when he or she has more complete information about a patient's medical history. In an era of ever-increasing health care costs, the providers are developing electronic patient records which can be retrieved from a regional medical archive to increase efficiency and clinical efficacy. The regional medical archive, like the mobile mammography van, also relies upon the availability of high bandwidth telecommunications transmission.

III. CONCLUSION

We hope that the FCC will see telemedicine as a mechanism for extending telecommunications services to areas that are underserved by both health care and telecommunications service providers. While telemedicine applications require unusually high bandwidth to be viable, once that bandwidth is available to an underserved area it can be used for many other applications. Furthermore, we believe that the high bandwidth demands of telemedicine applications are just the sort of application which will finally provide the incentives necessary to cause telecommunications service providers to recognize tribal and other underserved areas as viable markets. Additional help from the FCC is needed to make universal service funds available to help subsidize the telecommunication facilities required for the telemedicine applications, but we feel strongly that telemedicine provides the right incentives to accomplish the public interest goals that the FCC and the health care community both share.

Accordingly, Drs. Gitlin, Kilcoyne and Manson respectfully request that the Commission adopt the proposals set forth herein to help ensure the availability of high speed telecommunications technology for the purpose of bringing to Native Americans and other underserved populations the benefits of high quality, modern medical care.

Respectfully submitted,

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